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TECHNOLOGY DEPT.

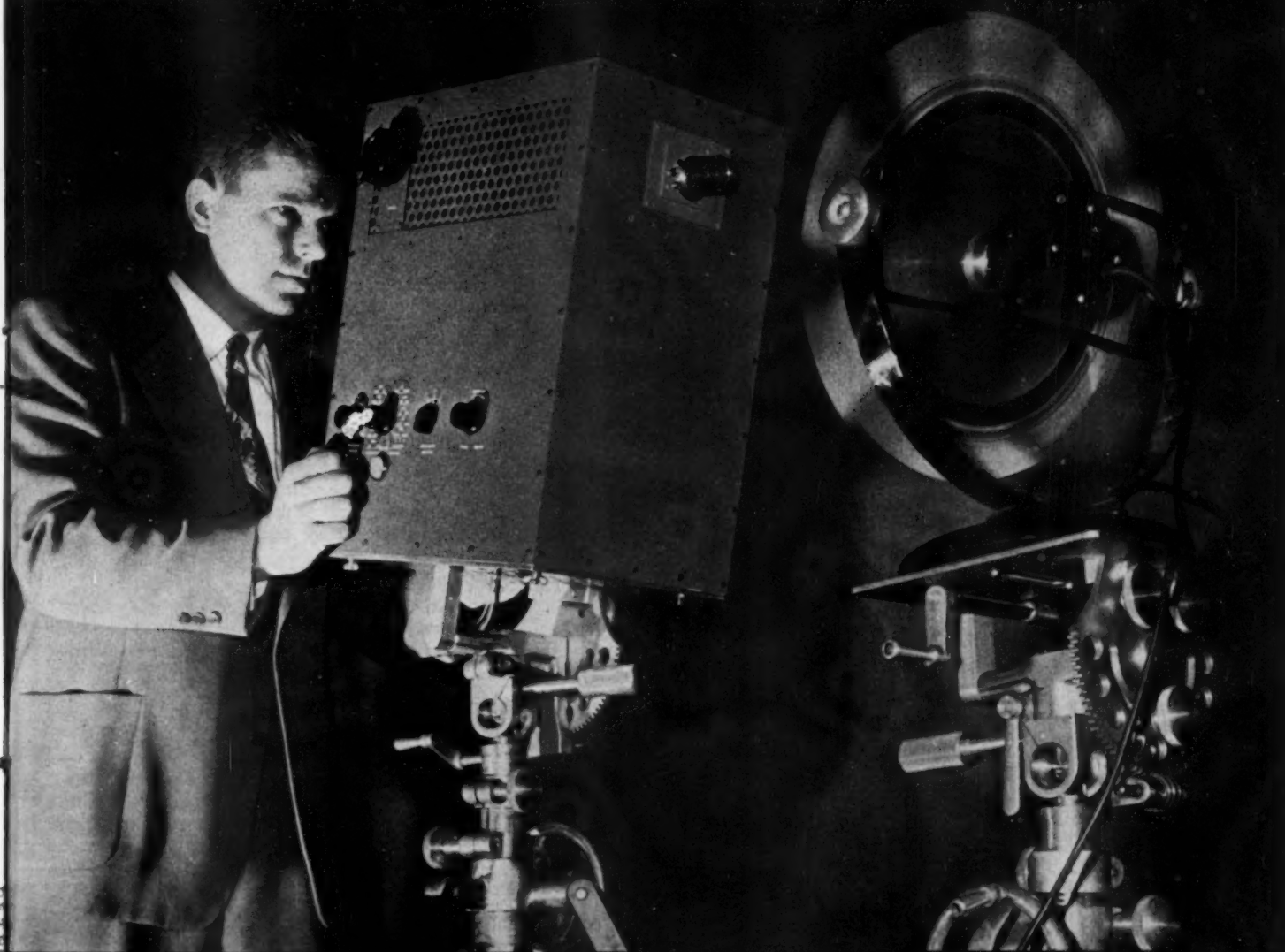
December 9, 1950

SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE



Freezes Motion

See Page 374

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VOL. 58 NO. 24 PAGES 369-384

Testing for sound lost between telephone receiver and ear. Many subjects were used in these tests.

How to compensate for a curl . . . and add to your telephone value



Bell scientists know that the telephone is not used under ideal laboratory conditions. There is never a perfect seal between receiver and user's ear. A curl may get in the way, or the hand relax a trifle. And ears come in many shapes and sizes. So some sound escapes.

Now, sound costs money. To deliver more of it to your ear means bigger wires, more amplifiers. So Bell Laboratories engineers, intent on a thrifty telephone plant, must know how much sound reaches the ear, how much leaks away. They mounted a narrow "sampling tube" on an ordinary handset.

The tube extended through the receiver cap into the ear canal. As sounds of many frequencies were sent through the receiver, the tube picked up a portion, and sent it through a condenser microphone to an amplifier. That sampling showed what the ear received.

As a result, Bell scientists can compensate in advance for sound losses—build receivers that give *enough* sound, yet with no waste. That makes telephone listening always easy and pleasant.

It's another example of the way Bell Telephone Laboratories work to keep your telephone service one of today's biggest bargains.



Automatic recorder plots sound pressures developed in the ear canal at different frequencies.

BELL TELEPHONE LABORATORIES



Working continually to keep your telephone service big in value and low in cost.

MILITARY SCIENCE

Use of Atom Bomb

Decision whether to use this weapon must be based on information about concentration of Communist troops and nature of terrain as well as source of materiel.

► CONGRESSMEN, U. N. delegates, Defense Department officials are seriously discussing whether to use any of our stock of A-bombs against the Chinese Communists.

It is rumored that this country has a stock of from 350 to 400 A-bombs. If that is so, A-bomb production is probably between 10 and 20 per month. Recently, it has been announced that this production will be stepped up.

A-bombs can be used tactically or strategically—provided the target is worth the price of the A-bomb.

Tactically, it can be used against concentrations of troops in the field.

Military commanders will have to consider two factors:

1. How many troops there are per square mile.
2. What the terrain is like.

Only twice has the A-bomb been used in battle. In both cases it was used in crowded cities. At Hiroshima, the population was 35,000 per square mile. In the 4.7 square miles destroyed by the A-bomb, 15,000 per square mile were killed and 15,000 per square mile injured. At Nagasaki, the A-bomb destroyed only 1.8 square miles, but there, with a population density of 65,000 per square mile, 20,000 per square mile were killed and 22,000 per square mile injured.

The difference in the extent of the damage was because Hiroshima was built on flat ground while Nagasaki was hilly.

There are between 200,000 and 300,000 Chinese Communist and North Korean troops in northern Korea between the Manchurian border and the United Nations front lines. This is mountainous territory. Mountains and hills greatly diminish the effects of the A-bomb.

However, it is believed that 700,000 or more Chinese Communist troops are being held in reserve on the other side of the Manchurian border. These troops are, perhaps, much closer together—hence there are probably many more of them per square mile. Yet, once again, the terrain factor must be considered.

In Hiroshima and Nagasaki, it was not possible to determine precisely which of the three lethal effects of the A-bomb was responsible for killing those who died within 2,500 feet of ground zero. Any of the three effects would have been fatal. But, generally, 20% to 30% died from burns, 5% to 15% from radiation and the rest from blast.

This picture would change in the field, away from the buildings of a city. Some of the deaths from burns happened when buildings caught fire after falling around

open fires. Many of the blast deaths were also indirect, from collapsing buildings, flying glass, etc.

Armies in the field are seldom housed in concrete buildings.

Unless the ground were extremely hilly, this, however, would mean less protection from gamma rays and from thermal radiation.

Therefore, if United Nations tactical planners can find a considerable number of troops concentrated within a few square miles of relatively flat land—the A-bomb would be the weapon. If, however, the troops are spread out and the terrain is hilly, more conventional weapons scattered over a wider area would be more effective.

In strategic planning, the generals are not out primarily to kill people. They wish to destroy the ability of a city to contribute to the enemy's war effort. This means they want to destroy factories, rail and wire communications centers, and governmental and military headquarters.

This was done to two cities in 1945. As has been previously noted, fire and air blast destroyed 4.7 square miles of the relatively flat Hiroshima and did decreasing damage

from there on out to edge of damage.

It should be pointed out that most factories in Hiroshima escaped damage because they were built on the edges of the city. However, the killing and wounding of 140,000 persons meant that the factories could not open for want of workers.

Here again, planners rule out targets too small for efficient use of the A-bomb's great power. Cities under 50,000 usually cover too small an area. In the Far East, cities under 100,000 probably would not be developed enough industrially to be worth an A-bomb.

If the purpose of dropping a bomb is to cut rail or road communications—the A-bomb would be a singularly inappropriate weapon. Well placed conventional bombs, along the thin and narrow lines can do much more damage.

There are between 60 and 80 cities in China and Manchuria with more than 100,000 population. Planners will have to consider how much materiel is going to the Communist armies from these cities and how much is coming from Siberia. They will have to consider that the Chinese Communists lived for years—and grew in numbers, territory and power—without controlling any of China's major cities or any of her railroads.

Those factors, plus the number of A-bombs we have in stockpile and the possible future use for them, the expense in men and money of conventional bombing, will have to be considered carefully before any decision is to be made on strategic use of the A-bomb in the Far East.

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STEPPED UP PRODUCTION—Expanding activities in airplane plants, due to the world's unsettled conditions, are reflected in this Boeing plant at Wichita, Kans., where giant jet-propelled bombers for the Air Force are being made. Picture shows the B-47, 185,000-pound plane in the 600-miles-per-hour class. It is the Stratojet, an improved version of the plane that crossed the continent from Seattle to Washington, D. C., in three hours and 46 minutes.

AERONAUTICS

1700 Miles an Hour

Planes of that speed predicted for year 1960. Must have pencil-thin fuselage, sharp nose and thin wings. Engines must have more thrust.

► AIRPLANES able to fly at 1700-mile-an-hour rate may be feasible by 1960, it was predicted by Harold Luskin, Douglas Aircraft Company, at the meeting of the American Society of Mechanical Engineers in New York. His discussion was devoted primarily to power plants and design for that high speed.

He presented a paper prepared jointly by him and Harold Klein of the same company. Since the power required for flight depends upon the amount of drag to be overcome, the aerodynamicist's first task is to reduce drag to a minimum, he said.

This is accomplished by creating airplane "profile," or shape, which offers the least resistance to motion under the special conditions of supersonic speed. That is why supersonic planes must have pencil-thin fuselages, sharp noses and thin wings.

Even so, he continued, engines required to ram airplanes through the air at two and one-half times the speed of sound must produce three or four times as much thrust for their weight as engines acceptable for subsonic conventional aircraft. This goal is obtainable in the near future, he predicted, through improvements in jet engines and adding after burners.

Proper engine installation also is essential in order to realize supersonic flight, he stated. "Thrust actually developed by a turbojet engine depends not only on the engine design but also on the installation in the airframe."

Loss of efficiency resulting from improper air inlets is much more critical at super-

sonic speeds than at lower speed levels. An improper air inlet not only increases drag but results in a loss of jet thrust at high speeds. Adjustable inlet scoops which permit the jet engine to gulp only the amount of air needed at any given speed are needed. Engine cooling is another major problem at supersonic speeds.

Science News Letter, December 9, 1950

MEDICINE

Chemical Urethane Best for Bone Cancer

► THE CHEMICAL urethane is the "treatment of choice" for the bone marrow cancer, multiple myeloma, in the opinion of Drs. Richard A. Haines, William N. Powell and Herbert Bailey, of Temple, Tex.

At the meeting in St. Louis of the Southern Medical Association, they reported good results with this chemical in five patients.

One, treated for seven months, has had relief of bone pain and there is evidence that the neck vertebra, broken through the disease, is recalcifying. A second patient, treated with urethane, for over a year has had marked improvement of her anemia as well as relief from the "exquisite" bone pain. She has also returned to some of her household duties.

Besides the improvement in the patients' well being, the Texas physicians reported definite changes in the architecture of the myeloma cell during urethane treatment.

ACTH, famous anti-arthritis pituitary

gland hormone, helped one out of three myeloma patients treated.

Stressing the importance of early diagnosis of this cancerous disease, the Texas physicians said that complaint of bone pain was the most frequent early complaint, with anemia and albumin in the urine as the two most common findings from laboratory tests.

Science News Letter, December 9, 1950

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RADIO

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GENERAL SCIENCE

Fear Loss of Personnel

Armed Forces laboratories must compete with industry which can pay more for professional men and technical workers. Also faced with threat of losing reservists.

► AS DEFENSE production orders mount up and recent enlarged appropriations for Defense Department research begin to come through, armed forces laboratories are starting to feel the effects of competition from industry for scientific and technical manpower. Private industry can pay more.

A recent example of this, with others like it expected, was the case of an underwater sound physicist at the Naval Research Laboratory. He receives a salary of \$7,800 a year. A private concern offered him \$12,000. Fortunately, this particular physicist will probably stay with the government because he likes his work.

The pinch is not confined to Ph.D.'s. The Naval Research Laboratory has approximately 3,000 employees, of whom 1,000 are scientists and another 1,000 technicians and craftsmen. The latter build the machines and equipment which are the tools and products of scientific research.

Private industry is beginning to compete

for these skilled workers, too. This competition is not confined to defense industry—television manufacturers have made tempting offers to some of the workers at this Laboratory.

Officials at the Laboratory do not know what the answer will be if all-out mobilization hits the nation. The answer will come from a higher level of government. Right now the National Security Resources Board is considering plans which envisage control during all-out mobilization of scientific and technical personnel, but whether or not this will include skilled laboratory workers is another question.

Another worry in this, and other, defense department research operations is the large number of employees in the reserves. Of the 3,000 employees at the Naval Research Laboratory, between 500 and 600 are in one component or another of the reserves.

If a man who is called up wants to go on active duty, the policy is not to ask for

deferment. However, deferment has been asked for most employees in the reserve who have been called up. In all cases, except for those who are in Naval Aviation reserve units, this deferment has been granted.

What worries those responsible for keeping up the quality of the research work in the Naval Research Laboratory is, in view of the large percentage of reservists on the staff, what will happen during a total mobilization?

Right now, the Naval Laboratory is searching for 46 high level scientists—physics Ph.D.'s, electronics scientists and others—either to fill jobs which have been vacant for some time or to take on new jobs. It needs men to do research in sound propagation, optics, airborne and shipboard electric systems, antennas, vacuum tubes, radar, psychology, nuclear physics and other subjects.

Science News Letter, December 9, 1950

MEDICINE

ACTH Life-Saving In Severe Burn Case

► ACTH, one of the two wonder drugs for arthritis, was credited with saving the life of a man who was critically burned over 71% of his body.

Doctors gathered in Cleveland for the American Medical Association's meeting were given an opportunity to see the patient, T. C. Gains of Parker, Ariz., as well as hear the report of the case by the physician who treated him, Dr. M. James Whitelaw of Phoenix.

The case is considered of special significance because Mr. Gains' burns were from a gasoline explosion, and therefore comparable to those which cause many casualties in modern warfare.

In the course of recovering from the burns, Mr. Gains had an attack of a kind of pneumonia and also an appendicitis operation.

In addition to saving Mr. Gains' life, ACTH was credited with the fact that, contrary to medical experience, 39 of 40 tiny skin grafts from other persons not only took root but grew outwards into covering for the exposed muscles, without sloughing off later as is usually the case.

Unusual also was the fact that Mr. Gains did not have any crippling from contracting scar tissue which is common in deep and extensive burns.

After ACTH treatment was begun, 24 hours after the accident, Mr. Gains was practically free of pain and needed very little narcotic drugs. There was none of the acute toxicity, severe shock and complete prostration usual in such cases, and he showed a sense of well-being and had a good appetite. ACTH was given for 92 days, but Mr. Gains was up and about on the 27th day.

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LIFE SAVED—Although burned over 71% of his body, T. C. Gains of Parker, Ariz., was saved by treatment with ACTH. In addition to his troubles with the terrible burn, Mr. Gains had to have an appendicitis operation (note scar) and had a bout with pneumonia. This photo was taken 102 days after treatment was started.

ASTRONOMY

Cause of Twilight Glow

That soft illumination of the sky in early morning and evening dusk is due to dust particles blown off of comets vaporized by sunlight.

► THE TWILIGHT glow of early morning and evening is due to comet dust, Dr. Fred L. Whipple, Harvard astronomer, has reported to the Harvard Observatory's visiting committee.

The soft illumination of the planet path in the sky that the sun has just left is of interest to astronomers as well as poets and lovers. Known as the zodiacal light, it is caused, Dr. Whipple has concluded from theoretical studies, by a cloud of very small dust particles circling the sun in the plane of the earth's orbit. This dust cloud scatters the sunlight so that there is light even when the sun is no longer visible.

These particles of dust also scatter the light about the sun at the time of total solar eclipse and add to the beautiful pearly luminosity of the solar corona which is a striking spectacle of the sun's complete eclipse.

Actually these particles that cause this heavenly glow are small fragments from comets. They are composed of material blown off comets when their icy surfaces are vaporized by sunlight.

The dust particles shot away from the comets in this way slowly spiral into the sun under the influence of light pressure and the momentum of light.

One ton of such fine comet dust added to the cloud around the sun each second would be sufficient to keep the zodiacal light glowing indefinitely, Dr. Whipple's calculations show. Actually comets contribute some 30 tons per second.

The planet Jupiter, through its gravitational effect, keeps all but a small fraction of the cometary material from spiraling into the sun. Very few of the larger particles which range from pinhead to marble size contribute to the zodiacal light. Such debris of the solar system, that produce shooting stars or meteors when they plunge into the earth's atmosphere, have their orbits disturbed by Jupiter or this giant planet swallows up the sizable cometary particles before they have time to spiral into the sun.

The small bits of dust size can spiral more rapidly, Dr. Whipple finds, and thus evade the gravitational barrier set up by Jupiter.

Science News Letter, December 9, 1950

PHYSICS

Simple Cloud Chamber

You can see cosmic ray tracks with home made device made from two metal disks and glass cylinder with container of dry ice and tray of water.

► NOW PEOPLE at home can actually see the tracks of the cosmic rays which are constantly bombarding every man, woman and child from outside our atmosphere. Atomic scientists at Brookhaven Laboratory, Upton, N. Y., have developed a cloud chamber which is not only simple enough to be built in the home but is also an improved research tool for the laboratory.

The new chamber was described by four Brookhaven scientists attending meetings of the American Physical Society in Chicago.

Cosmic rays are made up of atomic particles much too small actually to be seen. But as they dart through a saturated atmosphere in a cloud chamber they leave a trail of small droplets which are clearly visible, like the vapor trail left by high flying aircraft.

Earlier cloud chambers permitted seeing these tracks only for very brief periods of

time. The new, simpler chamber manufactures a continuous vapor which means that scientists can view the tracks continuously. Thus they will be able to observe, without interruption, many interactions of atomic particles.

The essential ingredients are easy to get and easy to put together, the scientists said. Dry ice is placed in a flat container underneath a metal disk 5 to 17 inches in diameter. On the top surface of this disk is placed black velvet, to provide a background for viewing the tracks. A glass cylinder, slightly smaller in diameter than the disk and open at both ends, is placed on this disk. Felt soaked in methyl alcohol is fastened to the lower side of another metal disk which is then placed on the top of the glass. A tray of water at room temperature is placed on top of the upper disk. When a strong light—a powerful flashlight—is beamed on the velvet, the cham-

ber becomes a showcase for many atomic events.

The new chamber was worked out by Drs. E. C. Fowler, D. H. Miller, R. P. Shutt and A. M. Thorndike of Brookhaven. It is an improvement of ideas already put forth in other laboratories.

Science News Letter, December 9, 1950

AERONAUTICS

Urge Same Standards For All Airplanes

► IDENTICAL requirements for the approval of airplanes as airworthy on the part of the military and the Civil Aeronautics Administration are essential, particularly in times of emergency, the American Society of Mechanical Engineers was told.

The commercial cargo fleet could become immediately available for emergency military operations if the approval requirements were the same, Alan F. Kelsey, Boeing Aircraft Company, Seattle, told the engineers. The differences are not fundamental, he indicated, and if eliminated, planes could be transferred from one service to another merely by changing the insignia.

The lack of standardization in requirements increases the cost of aircraft for both the commercial operators and the government, he declared, pointing out some of the differences. The Air Force requires a fire extinguisher system in the engine nacelle, the CAA does not. The increased quantity of carbon dioxide for the purpose in the military craft requires a completely different system than in the commercial plane.

Another item preventing certification of military transport aircraft is the CAA requirement for a fuel dumping system, he continued. "If it is necessary for commercial transport aircraft, why not for military? Both carry passengers who are entitled to equivalent standards of safety. The aircraft manufacturer could produce better aircraft for less money if differences in opinion such as these were resolved."

Science News Letter, December 9, 1950

On This Week's Cover

► THE FILAMENTS of a radio tube vibrating at extremely high frequency and other motion recurring as often as 300,000 times per second can be "frozen" either visually or photographically by a new type of stroboscope shown on the cover of this week's SCIENCE NEWS LETTER.

The new device, developed by the Naval Ordnance Laboratory at White Oak, Md., depends on the use of an electron tube similar to the snooperscope tube which, during the war, enabled sharpshooters to spot their targets at night.

Unlike the conventional high speed photography, the new NOL stroboscope can be used in normal lighting.

Science News Letter, December 9, 1950



LIGHT BUT STRONG—This airborne bulldozer is light enough to be flown to advanced combat positions, but is capable of doing the heavy work of its weighty predecessors.

ENGINEERING

Airborne Tractors

► **SPECIAL** road-building and other earth-moving machines, suitable for transportation by airplane, are being developed and tested by the U. S. Army Corps of Engineers. A combination of strength and light-weight is the aim.

Object of the program is earth-moving machines light enough to be rushed by air to advanced combat positions but rugged enough to do the work of the heavier machines usually employed for such purposes. A top weight of 16,000 pounds is the desirable limit. Included are such machines as tractors, dozers, cranes, scrapers, power shovels and rooters.

Some of the machines being developed are lighter models of present standard ma-

chines which are equipped with the power unit of the heavier types. These make up in speed and by other means the lost advantage of sheer weight. Some of the equipment has built-on containers to hold sand or other ballast to provide increased weight for traction when in actual use.

Among the items undergoing tests is a specially designed airborne crawler tractor of a type not commercially available. It has a hydraulically operated dozer blade, and is powered with an 85-horsepower diesel engine. The use of hydraulic controls makes available the mass of the machine for the bite into the earth, rather than only the weight of the pan and blade as in the customary cable-operated blade.

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SOCIOLOGY

Family Stability Myth

► **THE IDEA** that families were more stable in "the good old days" is largely a myth, declares Dr. Ray H. Abrams of the University of Pennsylvania sociology department.

There were "free love" colonies in the 1800's, he points out. Movements for equal rights for women and widespread prostitution a century ago were other signs of family instability in "the good old days," in Dr. Abrams' opinion.

Dr. Abrams does not think much of the status of family stability today, either. In a special "family stability" issue of the *ANNALS OF THE AMERICAN ASSOCIATION OF POLITICAL AND SOCIAL SCIENCE*, (November), he says:

"If we were to add to the divorce rate the desertions, the separations, and those who would like to sever the marriage bonds but for one reason or another do not, the sum total of marital disorganization would

be at least two to three times that represented by the divorce statistics."

Declaring that society seems more interested in preserving the status quo of its social institutions than in determining whether these human institutions actually promote human welfare, Dr. Abrams advocates that we get away from our fear of change.

"Ever before us is the blind worship of social institutions and the failure to realize that these institutions do not necessarily give us genuine stability," he says.

As to what makes a family stable, Dr. Abrams declares that "within the stable family there are enough inner resources to enable it to pull itself together in time of crisis or dis-equilibrium, enough resilience to enable it to come back to relative normality, and interrelationship between the members of the family which is strong enough and meaningful enough to continue functioning in terms of the emotional needs of the individuals concerned."

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PHARMACY

World Standard Set For Arthritis Remedy

► **ARTHRITIS** patients and their doctors all over the world will be helped by action taken by the World Health Organization's expert committee on biological standardization at its meeting in Geneva.

The committee set up an international standard for ACTH. This is the famous pituitary gland hormone which, like the adrenal gland hormone, cortisone, has been bringing relief to aching, crippled joints of arthritis sufferers.

Setting up an international standard gives manufacturers everywhere a single, internationally accepted measure for the activity of the substance they produce. When a doctor prescribes a dose of ACTH, therefore, he and his patient can be sure that the activity of that amount of ACTH will be the same no matter what manufacturer in what country produced the material the druggist dispenses. It will be the same, that is, if manufacturers all follow the international standard, which presumably they will.

Research workers, seeking to learn more about this antiarthritis substance, will also benefit from existence of the international standard.

International standards were set up for 15 other biological materials, including streptomycin and dihydrostreptomycin and two new antibiotic, or mold, remedies, aureomycin and terramycin. Blood-grouping serum for detecting anti-Rh factor also got an international standard.

Previously, WHO and its predecessor in this field, the Health Organization of the League of Nations, had set up 39 other biological standards.

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ENTOMOLOGY

Bees Have Sky Compass To Fly Bee-Line

► A COMPASS in the sky is the secret of how bees navigate, making the famed "beeline" a byword for straight and true flying.

The compass is polarized light, Dr. Karl von Frisch, Austrian zoologist, reveals in a book "Bees: Their Vision, Chemical Senses, and Language," (Cornell University Press). Bees, with compound eyes of many facets, somehow take their bearings from the planes of polarized light in the sky, the University of Munich professor has discovered.

The book also describes a strange dance by which explorer bees tip off the rest of the hive to a rich source of food.

In this "wagging dance," the bee runs a short distance in a straight line, meanwhile shaking his body from side to side. Then he turns and repeats the process. The number of turns tells how far away the food lies; the direction the bee takes in his dance gives the course in relation to the sun, Dr. von Frisch has found.

Toothpick-shaped organs in the bee's compound eyes apparently enable the insect to find the position of the sun even if it is hidden from direct view, the scientist believes. This organ, called an ommatidium, can measure planes of polarization in light from the sky.

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ANIMAL HUSBANDRY

Belgian Cows Give More Milk

► MILK production per cow is higher in Belgium than it is in the United States, according to a Marshall Plan report made for the Belgium Institute for Encouragement of Scientific Research in Industry and Agriculture.

Belgian cows average between 6,500 and 7,000 pounds of milk per year, whereas American cows produce about 5,000 pounds. The butter fat content, however, is lower—about 3.4% compared with 4% in the United States.

A high-producing cow is sometimes milked three times a day in Belgium. Many farms keep an official record of production by a system similar to the dairy herd improvement association method practiced in the United States.

Almost all Belgian cows are of excellent stock, with very few scrub cows, the ECA-sponsored report continued. One of the most popular breeds is a black and white Holstein-Friesian from Holland, which, surprisingly enough, is more common in the area near the French border, far from the Netherlands border.

Another popular breed, similar to the Holstein, but with red and white coloring, is found on many farms in northern Bel-

gium. A third breed is a cross between Holstein and Durham which has been developed for increased meat production. Meat is particularly important in the central, heavily populated region of Belgium.

Most Belgium dairy farms are small, particularly in the northern or Flemish region. The average farm does not exceed more than 15 or 20 acres. Practically none of the farms are restricted solely to dairy production, although milk products account for the largest part of farm income in the country, some 37%.

A large quantity of sterilized milk is produced in Belgium. The milk is bottled and heated to a temperature of 240 degrees Fahrenheit. The product is similar to evaporated milk and will keep indefinitely. One of the reasons for the popularity of sterilized milk is the fact that relatively few homes are equipped with refrigerators. In most homes, the housewives boil all their milk.

Research agencies and farmers are working hard to stamp out animal diseases, especially tuberculosis and Bang's disease.

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PLANT PATHOLOGY

Serious Oak Wilt Disease Spreads Out from Midwest

► OAK wilt, one of the most dangerous forest diseases to appear in America since blight swept the continent clear of its chestnuts, has been found in Pennsylvania for the first time.

The disease appeared near the exact geographical center of the state, in a wooded grove about 70 miles northwest of Harrisburg. It was identified by Dr. Charles L. Fergus of Pennsylvania State College and Caleb L. Morris, a state forester.

Caused by a deadly fungus, *Chalara quercina*, oak wilt was first found in 1944 in northern Illinois. The disease has since spread rapidly. Although science still does not know how it is transmitted, in six years it has struck across Illinois, Wisconsin, Minnesota, Iowa, Missouri and Indiana.

It was reported for the first time this year in Arkansas and Ohio. Its appearance in Pennsylvania, however, marks its closest approach to the Atlantic seaboard.

Whatever its manner of travel to a new locality, oak wilt can kill a tree within weeks, and it is causing forest pathologists grave concern. There is no known prevention or cure.

Dr. Fergus and Mr. Morris report that the wilt has apparently been in Pennsylvania "for several years," judging from the condition of the trees they found. They believe it probable that other areas of infection exist in the state.

The task of finding these fester spots will not be easy, they say. There are approximately 15,000,000 acres of forests in Pennsylvania, and about half the trees are oak.

Science News Letter, December 9, 1950

IN SCIENCE

ANIMAL HUSBANDRY

Terramycin Puts Extra Pounds on Pigs

► TERRAMYCIN, newest of the earth-mold "wonder drugs," can put on an extra pound for every six that a growing pig gains.

The antibiotic was the most effective of four drugs tested as animal feed supplements, Dr. J. H. Brown of Shoemakersville, Pa., and H. G. Luther of Brooklyn, N. Y., reported to the American Society for Animal Production in Chicago.

Checked against a pen of control hogs, the swine which were fed antibiotics with their food gained more weight consistently as they grew to market size. A group fed terramycin gained 18% more weight; streptomycin brought a 15% gain; aureomycin an 11% boost, and penicillin 7%.

Less than a third of an ounce of antibiotic was mixed with each ton of hog feed. Yet this was enough to produce gains in weight as high as 50% over the control pigs during the first weeks of the 16-week experiment.

Why these wonder drugs are effective is still a mystery. The Nutrition Foundation found this year that a tenth to a third more nourishment can be obtained from food if one of the new disease-fighting wonder drugs is taken along with it. This appears to hold true for humans as well as for animals and poultry.

Science News Letter, December 9, 1950

POMOLOGY

American Apple Does Not Turn Brown in Air

► THE AMERICAN people as well as the Germans, (SNL, Nov. 11, p. 308) have a commercial apple whose flesh does not turn brown when exposed to the air. In 1915, the New York State Agricultural Experiment Station introduced the Cortland, an apple derived from a cross between the Ben Davis and the McIntosh.

This apple has a very white flesh that oxidizes very slowly and consequently is used extensively in salads. In fact in New York City it is known as the "salad apple." Although introduced only 35 years ago the Cortland ranks third in importance in New York State and its popularity is on the increase.

In the extensive apple breeding studies of the New York State Agricultural Experiment Station occasional nonoxidizing fruits are noted but unless they possess other attributes essential for a commercial variety they will not be introduced for general trial.

Science News Letter, December 9, 1950

SCIENCE FIELDS

MEDICINE

Aureomycin Not a Cure For Influenza Type A

► HOPE that aureomycin, one of the so-called mold remedies, might prove a cure for influenza, is set back by a report to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Dec. 2).

Tried during an epidemic of influenza A at Fort Ord, Calif., last January, patients did not get well any faster than those given penicillin or those given no chemical treatment at all.

In a different situation, with a different influenza virus than the A virus, or with the patients carrying lots of other germs in their noses and throats, which these previously healthy young men did not, aureomycin or some other antibiotic might reduce complications, it is pointed out.

The carefully controlled study is reported by Maj. William G. Thalmann, Dr. C. Henry Kempe of San Francisco, Capt. Joseph A. Worrall and Dr. Gordon Meiklejohn of Berkeley, Calif.

Science News Letter, December 9, 1950

SAFETY

Retired "Tommies" Bombed In Civil Defense Training

► RETIRED sergeants of the British Army are willingly serving as "live decoys" for civil defense rescue team training, Dr. Herman E. Hilleboe, New York State Commissioner of Health, reported at the conference of State and Territorial Health Officers in Washington, D. C.

Actual fires and destruction of buildings are other features of the extremely real training of civil defense workers in England which Dr. Hilleboe saw on a visit there this fall.

The English method of teaching through actual experience as well as through verbal exercises is one we should follow, he told his fellow health officers.

The army sergeants bury themselves in concrete cells in the basement of the house which is to be blasted. They are made up as if they were injured, so as to give realism to the rescue work. They do not mind the dirt or danger of being bombed as long as they are protected and "find the extra money comes in handy," Dr. Hilleboe reported.

The rescuers go through a three-foot brick wall in a matter of seconds.

After a week of indoctrination, a rescue squad of eight will be alerted in the middle of the night—usually a rainy one. They look out the window and see a brick building being blown up. They have to go out

with their trucks, enter the building and listen for the cries of the injured. This is where the retired army sergeants play their parts. Sometimes trained dogs are used to help find entrapped victims.

Proper construction of shelters is stressed in England. Unless properly constructed, Dr. Hilleboe pointed out, basement shelters may become "tombs" with people left to starve to death in concrete cells with walls three feet thick.

Science News Letter, December 9, 1950

RADIO

Now Three-Dimensional Color Television

► THE NEWEST entry in the field of color television is a system which not only produces images in natural color but also in three-dimensional perspectives.

A patent has just been issued for a set which can turn this trick. It was invented by Thornton W. Chew, a U. S. Navy scientist who submitted his patent application just after V-J Day in 1945.

Unlike other color television methods which are based upon spinning color wheels or several electron-beam scanning rays in one set, the new system has a single projection tube with no outside mechanical adapters.

Its screen is a bank of tiny fluorescent strips, with every third strip adapted to produce one of the three primary colors, red, blue or yellow.

A single electron beam scans each color group in split-second succession, synchronized with the transmitter. Because of so-called vision persistence in the human eye, the three images produced in different colors blend to form a single natural color image.

To make certain the pinpoint beam falls on the proper color strip, magnetic lines of force act as guides within the tube. This is the secret of the new system.

Its high point is that it can be used to produce stereoscopic images, a picture seemingly in three dimensions. This is done, the inventor says, by using one color to show the picture taken by one stereoscopic camera, and another color to show the picture from a second camera. Royalty-free rights on the invention, covered by patent 2,529,485, are assigned to the U. S. government.

Science News Letter, December 9, 1950

CHEMISTRY

Peppery Chemicals Made in Laboratory

► SOME peppery chemicals have been made in the Quartermaster General Laboratories. They are known chemically as piperazonium salts. They dissolve in water and their pungent taste is like that of the piperine of black pepper. Details of the production of these snappy chemicals are reported in the journal, SCIENCE, (Nov. 24) by Torsten Hasselstrom, Norene E. Kennedy, Clifford E. Balmer and Harold W. Coles.

Science News Letter, December 9, 1950

AGRICULTURE

All Time Record Peanut Crop Expected

► PEANUTS, peanuts, peanuts. More peanuts. In fact, the Department of Agriculture reports, there will be enough peanuts grown around the world in 1950 to set an all-time record.

This is despite a lower-than-usual peanut output by U. S. farmers, who reduced their acreage by nine per cent this year at government request. The result was the smallest peanut crop since 1941 in the United States—885,700 tons as compared to 937,900 tons last year.

But in the rest of the world, booming crops were grown to satisfy the demand by humans and livestock for peanuts. All told, the Office of Foreign Agricultural Relations said, peanut production will come close to 11,400,000 tons in the shell this year, the highest on record.

Science News Letter, December 9, 1950

ENGINEERING

Sound Measurer May Give Sound-Proof Walls

► SOUND-PROOF walls and ceilings in hotels and apartment houses may result from investigations now under way in Cambridge at the Massachusetts Institute of Technology. Acoustical scientists of its staff have developed a sound-measuring device to record the sound that gets through various types of wall panels.

This pick-up and measuring instrument consists of a microphone to pick up the sound which gets through a panel being tested and an electronic mapping device on which the sound from the microphone is mapped in curved lines to indicate its intensity.

Together with it is employed a special sound-making device to create the noise to be directed through the panel. This sound-maker consists of 256 small loudspeakers mounted close together in 16 rows of 16 speakers each. They are operated electrically, all in unison or some quickly following others. Together they can make as much noise as a battalion of field artillery.

In use, a panel to be tested is mounted in a steel frame and set into one wall of sound-proof concrete test chamber. Noise from the sound-maker is directed against the outside of the panel. The measuring device is on the inside.

The tiny microphone is moved systematically across the face of the panel so that records are obtained of the amount of sound getting through at various positions, including at windows, studding and insulation in the panel. This sound-measuring method was first proposed during World War II by Prof. L. L. Beranek, of the M. I. T. staff, who is largely responsible for the equipment now ready for use in Cambridge, Mass.

Science News Letter, December 9, 1950

ENTOMOLOGY

Gas War on the Farm

Deadly insecticides closely related to German nerve gas has put the farmer into a gas mask. Scientists consider necessary precautions to protect him.

By SAM MATTHEWS

► THE HORRORS of radioactive dusts, bacteriological warfare and "nerve gases" may never become realities in human war. But today in another type of war, these things are being used with deadly effect. The farmer has new weapons to fight insects, and the public gets more food and better food, through peacetime development of these wartime products of science.

Insecticides such as parathion, TEPP and HETP, members of a chemical family called the organic phosphates, are offshoots of German research in World War II into the dreaded "nerve gases."

With extremely potent effect against insect pests, the organic phosphates are among the most promising new weapons in better crop control. At the same time, food contamination due to residue hazards presents little or no danger to the consumer. The organic phosphates decompose rapidly after use on crops.

The danger is to the men who make and handle these new chemicals, the industrial workers, the farmer and the men on the spray rigs or crop dusting planes.

In the past four years, more than a dozen men have been killed by the organic phosphate insecticides. Many others have been made violently ill. Public health authorities blame most of the accidents on disregard by the victims of the need for gas masks and protective clothing. (The organic phosphates can poison the body through the lungs or the skin with almost equal suddenness.)

Bought War Surplus Masks

Many farmers bought war-surplus gas masks for use when they spray with these new organic poisons. In the past year, scientists of the Department of Agriculture have learned these masks will not stop the organic phosphate sprays and dusts.

"War surplus masks are worthless against the phosphates," Dr. Robert A. Fulton said bluntly.

To give farmers better protection, experiments under Dr. Fulton's direction have been going on since November, 1949, at the huge, sprawling U. S. Agricultural Research Center in Beltsville, Md. An Interdepartmental Committee on Pest Control (Agriculture, Public Health Service, Food and Drug Administration, Bureau of Mines, Army Chemical Corps and co-operating industrial groups) initiated the program. The first point of attack was on

parathion, first of the organic phosphates.

Dr. Fulton's job was to find respirators or gas masks able to filter out all but one part per million of the insecticide in the air passing through them. The filters had to grab and hold particles less than one-tenth of a micron in diameter. A micron is 1/1000 of a millimeter, or about 1/25,000 of an inch.

These particles of poison are too small to be detected by ordinary means. To learn whether or not his gas masks were actually catching them, Dr. Fulton used first a spectro-photometer and then live insects to do the detecting.

The spectro-photometer identifies tiny amounts of the insecticides by the effect on light rays passing through the contaminated air.

When this sensitive instrument is not sensitive enough, the chemist works with entomologists and uses specially-bred colonies of tiny aphids and spider mites. He runs sprays or dusts through his test cartridges and filters and passes the purified airstream over insects in a glass-enclosed

chamber. The number of insect deaths in a given length of time gives an accurate measure of the poison still in the air, he explained.

"From the filters we have now for parathion," said Dr. Fulton, "we think that the toughest of the new insecticides has been licked."

Specifications were set up for respirators with an intricate filter to cleanse the air drawn through them, plus chemically-activated carbon to catch any parathion which the filter misses. The government scientists then cooperated with manufacturers of protective equipment to help them meet the new requirements. This summer, the Interdepartmental Committee listed five respirators which met the safety requirements for parathion.

Dr. Fulton's next task is to find filters to handle tetraethyl pyrophosphate (TEPP) and hexaethyl tetraphosphate (HETP). His eventual goal is one canister which will handle all of the new organic insecticides.

Even as toned-down agricultural weapons the organic phosphates are extremely dangerous. Col. John R. Wood, an Army Chemical Corps doctor, reported recently in the JOURNAL of the AMERICAN MEDICAL ASSOCIATION.

In his paper he described the lethal effect



TESTED—Dr. Robert A. Fulton, Agriculture Department scientist, holds a few of the masks he has tested.



FARM WARRIOR—A special gas mask, protective clothing and rubber gloves are necessary when spraying with parathion in a greenhouse. If too much of this insecticide is breathed or absorbed through the skin, it can have the same effect as the war-developed nerve gases.

of these chemicals upon the human body as exactly similar to that of the super-secret "nerve gases."

"It seems unlikely today," Col. Wood wrote, "that chemical agents offer our potential enemies effective weapons for long-range attack . . . with the possible exception of the nerve gases." Nerve gases, he said, might well be used in a future war.

U. S. scientists found the formulas for the nerve gases and also for the organic phosphate insecticides after the Germans surrendered. Since then, official U. S. research on nerve gases and possible protection against them has been screened by an impenetrable shield stamped "Classified," "Confidential" and "Secret" and guarded by "No comment." The same is true for research into ways of protecting people against bacteriological and radiological warfare, the twin bugaboos which stand beside the hydrogen bomb in this atomic age.

The Agriculture Department's program of gas mask research has been entirely independent of military requirements, officials are quick to point out.

But in today's paradoxical world, where the lines between gas warfare and battling insect pests has become very thin, the American farmer needs—and is getting—protection very similar to that of the U. S. soldier on the battlefield.

Science News Letter, December 9, 1950

MEDICINE

Sweet Aspirin Gives Fast Pain Relief

► **TESTS** showing that a sweet aspirin relieves pain faster than plain aspirin or two other aspirin preparations are reported by Dr. Murray M. Hoffman, oral surgeon, in the *ILLINOIS DENTAL JOURNAL*. (October.)

Marketed under the trade name, Theryl, the sweet aspirin is a combination of aspirin and benzosulfimide, or saccharin, the synthetic sweetening substance. The new drug comes in tablets which are placed under the tongue instead of being swallowed.

Pain began to be relieved in from one-half to five minutes with the new drug, compared to 14 minutes, the fastest for any of the three others Dr. Hoffman tried. Toothaches and neuralgias (not tie dou-loureux) and the pain after having teeth pulled and in cases of dry sockets were among the ones Dr. Hoffman reported relieved quickly by the new drug.

Similar good results with the drug in relieving pain after surgical operations have been reported by Dr. Raymond W. McNealy. He points out in a report to the Illinois Medical Society that the results are probably due to the aspirin part of the drug which is absorbed more rapidly as a result of being combined with saccharin.

Because the drug is non-habit forming and can be taken by patients who cannot have fluids by mouth, Dr. McNealy believes it has a wide range of usefulness.

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PHYSICS

Atomic Age "Dog Tag" Tells Radiation Dose

► A SELF-DEVELOPING "atomic dog tag" for soldiers and civilians has been developed by the Army Signal Corps.

A small metal case containing photographic film and a packet of developing solution, the radiation indicator can be worn around the neck. It measures very slight to fatal doses of radioactivity from an A-bomb attack by discoloration of the film.

Science News Letter, December 9, 1950

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RESOURCES

Defense Needs Cobalt

Use of metal which can withstand heat of jet engines restricted. Non-defense use in television, radio and telephones cut 70%.

► JET PLANES have put the squeeze on Howdy Doodie and Jack Benny. Defense needs for cobalt, a silver-white metal which can withstand the hell's fire of jet and gas turbine engines, will be felt first by makers of television and radio sets.

A cut of 70% was made by the National Production Authority in November deliveries of cobalt for non-defense purposes. Chief among these civilian uses of cobalt are special alloy steels used in making permanent magnets in television, radio and telephone receivers.

For a one-week period cobalt was frozen completely by government order. A spokesman for the Radio-Television Manufacturers Association said that without any cobalt at all, the industry would have had to shut down completely by the end of the year.

Cobalt alloy magnets are used in the electrical generators of airplane and tank engines. Mixed with beryllium and copper,

cobalt goes into the propeller hubs of piston-driven aircraft.

But the most vital use of this highly-strategic metal is in machine tools. Mixed with chromium and tungsten, it makes a material called stellite. Stellite is the stuff of high-speed, heavy-duty, high-temperature cutting tools which are harder than any steel at red-hot temperatures.

Special steel alloys are made containing

cobalt. These steels have wide uses in munitions and defense equipment.

Vitallium, an alloy containing about 65% cobalt, 30% chromium and 5% molybdenum, is used as a heat-resistant material in gas turbines and jet engines. (It is also used by dentists and doctors as a non-corrosive, electrically neutral metal for teeth fillings and surgical needs.)

Cobalt compounds are vital in making enamels stick to metal. They are used as pigments in paint, to color glass, in livestock feeds and in nickel-plating.

The major source of cobalt in the world is the Belgian Congo. A single company, the African Metals Corp. of New York, is the only cobalt importer. In this country, only an insignificant amount is produced, although the United States is far and away the world's biggest user of cobalt.

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FORESTRY

Fire Fighters Needed

Machinery which will operate effectively in forests is essential. Barrier makers, tanker units to replace hand labor requirements for forest fire control.

► SUITABLE machinery, capable of operating effectively under the conditions existing in woodlands, is essential to modern methods of fighting forest fires, the American Society of Mechanical Engineers was told by Gilbert I. Stewart of the Michigan Forest Fire-Experiment Station.

Effective methods of controlling forest fires can be made relatively simple if machinery is employed, he said. This machinery is used to construct firelines or barriers ahead of the running fire. These barriers are built as close to the fire as possible. The machines must be built with heavy plows or other dirt-turning equipment.

Other important equipment includes tanker units with powerful pressure pumps for use in subduing the fire with water. Like the barrier builders, they must be able to travel through woods under abusive conditions. No single type of equipment can be used in all areas because forest conditions vary greatly throughout the nation.

Present general methods of fighting forest fires are satisfactory, he indicated, but suitable machinery must replace hand labor. The uses of chemicals have barely been investigated, he stated. Application of aircraft in actual suppression work is in its infancy. The helicopter faces a bright future, especially in wilderness country.

Special methods of drying lumber, which are faster than conventional air-drying or kiln-drying, were discussed at the same meeting by Harold N. Tombach, Lane Company, Inc., Altavista, Va. These processes are already in use commercially to a

limited extent but will probably find wider applications in the future.

They include vacuum seasoning drying with super-heated steam, vapor-drying, boiling-in-oil, drying with infra-red rays, dielectric heating and solvent seasoning. These special methods require more costly equipment than kiln-drying, but the decreased drying time makes a quicker turnover of lumber possible and, therefore, cuts the amount of money tied up in stocks of lumber.

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Fruit trees can well be used for lawn decorations and shade, and they help in the food problem.

In a special greenhouse used in connection with the development and testing of insecticides, plants are grown and also insects that kill the plants are raised.



New buffer solutions for calibrating pH Instruments

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Shrews

► A VERY small animal with a very large nose is the shrew, whose chief fame arose when Shakespeare applied its name to women of unfortunate and trying disposition. In the eyes of many naturalists, this was grossly unfair to the shrew.

It is true that the little shrew is a nervous mouse-like mammal, addicted to burrowing and possessing both the inquisitive nature and the elongated nose needed for this prying. But in burrowing for food, the shrew performs a useful service. Shrews eat a lot of harmful insects in the ground. They also eat snails, an occasional field mouse, and many an earthworm. Few women care for these dishes, despite their dispositions.

Counted among shrews are the smallest of the world's true mammals, tiny furred

animals which do not weigh as much as a penny. Yet this minute creature can become, on occasion, one of the most ferocious beasts of the woods, pennyweight for pennyweight. When the little shrew can get food no other way, it turns to cannibalism.

Dr. C. H. Merriam, the noted mammalogist, tells of three little shrews he placed together under a tumbler. One was immediately killed and devoured by the other two. Eight hours later, a second had disappeared. The remaining shrew gave evidence of being rather well fed. It had attacked, overcome and ravenously devoured two of its own species, each as big as itself, all within a normal working day.

The shrew is a close cousin of the mole. It even looks like the mole, with small beady eyes so thickly covered with fur that people sometimes claim the animal is blind. In reality, at least one variety of shrew not

only uses its eyes while it is awake, but also while sleeping.

This is the African elephant shrew, so called because its snout is so long that it resembles an elephant's trunk. The assistant director of the National Zoo in Washington, Ernest P. Walker, has a pet elephant shrew which sleeps apparently without ever closing its eyes.

Some shrews are burrowers. Others live among the dead leaves in the forest, moving nervously about all the time. Another African variety thinks it is a kangaroo. It leaps remarkable distances to prove it.

There is a water shrew, sometimes called the "fish mouse." This amphibious creature has been seen to dive to the bottom of an aquarium, dig its long flexible nose into the sand in search of food, and literally standing on its snout, kick its feet to stay in position.

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• Books of the Week •

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THE A, B, C'S OF SALT AND SODA FOR SHOCK IN BURNS—Public Health Service, 4 p., illus., paper, single copies free upon request to publisher, Federal Security Agency, Washington 25, D. C. Rules for newly recommended method of emergency treatment of shock.

A. S. T. M. STANDARDS ON TEXTILE MATERIALS (WITH RELATED INFORMATION): Specifications, Tolerances, Methods of Testing, Definitions and Terms—A. S. T. M. Committee D-13 On Textile Materials—American Society for Testing Materials, 572 p., illus., paper, \$4.50.

ACCIDENT HANDBOOK—Compiled by members of the Staff of The Children's Hospital—Children's Medical Center, Boston, 20 p., illus., paper, 25 cents. Provides information on what to do in case of home accidents.

AIRPLANE DESIGN MANUAL—Frederick K. Teichmann—Pitman, 3rd ed., illus., \$7.50. An introduction to airplane design. A college text brought up-to-date.

ATOMIC BOMBING: How to Protect Yourself—Science Service—Wise, 186 p., illus., \$1.95. Methods for protection against the radiation and the blast of an atomic bomb are presented. Such topics as what an A-bomb will do, how to detect radiation, preventing panic, medical first aid and the history of atomic energy are discussed. Members of the staff of Science Service have written this book.

AVIATION FROM THE GROUND UP—John J. Floherty—Lippincott, 157 p., illus., \$2.75. A brief history of aviation.

BUTTERFLIES OF GRAND CANYON NATIONAL PARK—John S. Garth—Grand Canyon Natural History Association, 52 p., illus., paper, 75 cents.

THE CHEMICAL ELEMENTS AND THEIR COMPOUNDS, Vol. I & II—N. V. Sidgwick—Oxford University Press; Vol. I, 853 p.; Vol. II, 848 p.; illus.; \$14.00. Discusses the proper-

ties of the elements and their compounds in the light of new ideas of atomic and molecular structure. Of British origin.

CHILDHOOD AND SOCIETY—Erik H. Erikson—Norton, 397 p., illus., \$4.00. Discusses the relationship between childhood training and cultural accomplishment and between childhood fear and social anxiety from the point of view of a child psychoanalyst.

CONTRIBUTIONS TOWARDS THE KNOWLEDGE OF THE MIGRATION OF BUTTERFLIES—Erik Tetens Nielsen and Astrid Tetens Nielsen—American Museum of Natural History, 29 p., illus., paper, 25 cents.

CULTURE IN CRISIS: A Study of the Hopi Indians—Laura Thompson—Harper, 221 p., illus., \$4.00. An account of this ethnic group from a multi-discipline viewpoint. The study was made for the purpose of evaluating and planning government policy.

DATE PALM INSECTS IN THE UNITED STATES—Fenner S. Stickney, Dwight F. Barnes and Perez Simmons—Gov't. Printing Office, U. S. Dept. of Ag. Circ. No. 846, 57 p., illus..

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ELECTROPHORESIS IN PHYSIOLOGY—Lena A. Lewis—Thomas, 66 p., illus., \$1.85. Basic information on the migration of colloidal particles under the influence of an electric field in relation to physiology.

GREEN THUMB, Vol. I, No. 1: Gardening in the Deep South—Frederic F. Walden, Ed.-in-Chief—Green Thumb Publishers, monthly, illus., paper, \$2.50 per year, 25 cents per copy, foreign \$3.00 per year. Designed to aid the southern gardener make his home more beautiful.

GUIDE TO THE CLASSIFICATION OF FISHING GEAR IN THE PHILIPPINES—Agustin F. Umali—Gov't. Printing Office, U. S. Dept. of Interior Research Report 17, 165 p., illus., paper, 40 cents.

HANDBOOK OF ANTIBIOTICS—A. L. Baron—Reinhold, 303 p., illus., \$6.50. A reference manual.

HANDBOOK OF CHEMISTRY AND PHYSICS: A Ready-Reference Book of Chemical and Physical Data—Charles D. Hodgman—Chemical Rubber Publishing Co., 32nd ed., 2879 p., illus., \$7.50. A standard reference brought up-to-date.

HEART DISEASE: A Story of Progress—National Heart Institute, Public Health Service Publ. No. 17, 20 p., illus., paper, 15 cents. General information in non-technical language.

THE INCOMPARABLE VALLEY: A Geologic Interpretation of the Yosemite—Francois E. Matthes—University of California Press, 160 p., illus., \$3.75.

INDUSTRIAL PLANT LOCATION: Its Application to Zinc Smelting—Carl Hayden Cotterill—American Zinc, Lead and Smelting Co., 155 p., illus., \$5.00. Written from the viewpoint of technology, business and geography.

THE ISOCORTEX OF THE CHIMPANZEE—Percival Bailey, Gerhardt Von Bonin and Warren S. McCulloch—University of Illinois Press, 440 p., illus., \$8.50. A detailed study.

MODERN ABNORMAL PSYCHOLOGY: A Symposium—W. H. Mikesell, Ed.—Philosophical Library, 880 p., illus., \$10.00. A compilation of articles by leading men working in the field of abnormal psychology. Primarily a reference and source book.

THE NOMOGRAM: The Theory and Practical Construction of Computation Charts—H. J. Allcock and J. Reginald Jones—Pitman, 4th ed., 238 p., illus., \$3.75. A college text brought up-to-date. Revised by J. C. L. Michel.

POSITIVE-DISPLACEMENT PUMPS AND FLUID MOTORS—Warren E. Wilson—Pitman, 250 p., illus., \$7.50. For graduate engineers.

PLUMBING—J. T. Lendrum—Small Homes Council, University of Illinois, 12 p., illus., paper, until Feb. 1, 1951 free upon request to publisher, Mumford House, Urbana, Ill. General information for the householder.

RACCOONS OF NORTH AND MIDDLE AMERICA—Edward A. Goldman—Gov't. Printing Office, U. S. Dept. of Interior, North American Fauna 60, 153 p., illus., paper, 45 cents.

SURVEY OF FOOD AND NUTRITION RESEARCH IN THE UNITED STATES—1948-1949—Committee on Survey of Food and Nutrition Research of the Food and Nutrition Board—Office of Technical Services, U. S. Dept. of Commerce, 311 p., paper, \$1.75.

TV AND OTHER RECEIVING ANTENNAS: Theory and Practice—Arnold B. Bailey—Rider, 595 p., illus., \$6.00. A reference book.

TEXTBOOK OF ORGANIC CHEMISTRY—Louis F. Fieser and Mary Fieser—Heath, 741 p., illus., \$6.00. The development of fundamental principles is exactly the same as in the authors' larger book ORGANIC CHEMISTRY (See SNL, Aug. 12, 1950, p. 111) except for a few minor changes. Some topics on biochemistry, technology and reaction mechanisms found in the larger volume have been omitted in this book.

USE OF ETHYLENE IN HARVESTING THE PERSIAN WALNUT (*Juglans regia*) IN CALIFORNIA—D. G. Sorber and M. H. Kimball—Gov't. Printing Office, U. S. Dept. of Ag. Tech. Bull. No. 996, 80 p., illus., paper, 25 cents.

WORLD GEOGRAPHY OF PETROLEUM—Wallace E. Pratt and Dorothy Good, Eds.—American Geographical Society, 464 p., illus., \$7.50. The nature and deposits of petroleum in the crust of the earth are discussed. Valuable contributions are written by Kirtley Mather, Geoffrey Barrow and many other well-known authorities.

Science News Letter, December 9, 1950

VOLCANOLOGY

Volcanic Eruption Covered Glacier

► A VOLCANO that covered a glacier during its first eruption about 35,000 years ago was described in Washington by Prof. W. H. Mathews of the University of California, Berkeley.

After erupting, Mount Garibaldi, one of a chain of volcanoes in southern British Columbia, had a portion of its cone on ice and this part collapsed when the climate warmed, he told the members of the Geological Society of America.

The volcanic cone was four and one-half miles across at its greatest size. The dome is now being destroyed by landslides, torrential streams and frost action, he stated.

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✿ **CORN BUTTERER**, recently patented device for corn-on-the-cob eaters, is a small butter-holding box-like affair with a curved perforated lower side. Heat of the corn melts the butter while the device is moved back and forward by a convenient handle.

Science News Letter, December 9, 1950

✿ **EYE SHIELD**, for airplane pilots learning instrument flying, permits a clear view of instruments on the panel but nothing outside the plane when windows are covered with an amber plastic. The semi-circular blue plastic shield covers the face down to the mouth.

Science News Letter, December 9, 1950

✿ **NOISE METER**, developed by the Army Signal Corps, measures interference to radio or television produced by electric fans, refrigerators, automobile ignition systems and other sources. Frequency range of this new-type accurate noise meter stretches from ordinary radio to radar.

Science News Letter, December 9, 1950

✿ **MOISTURE TESTER**, to determine moisture content of wood, consists of an electric meter with battery and probing electrodes in a unit at the end of an electric cable. When the probes are pushed into a sample of wood, moisture is indicated directly in percentage.

Science News Letter, December 9, 1950

Do You Know?

Over 14,700,000 car radios are in use in America.

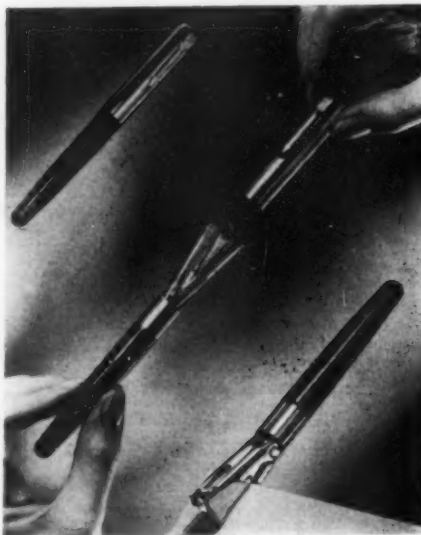
Forest fires sometimes travel forward faster than a deer can run.

More cooked dry beans are canned than any of the so-called seasonal vegetables such as peas, corn and tomatoes.

Mastitis, the most costly disease of dairy cattle in the United States, is an inflammation of the milk-producing glands in the udder.

The use of neoprene, a synthetic rubber, as a covering for outdoor telephone wires has cut maintenance troubles by 35%, offsetting its higher costs over older coverings.

The American steel industry now has an annual production capacity of about 100,000,000 tons; under present plans the capacity will be increased 22% by the end of 1952.



✿ **POCKET STAPLER**, designed to fasten together as many as 12 sheets of paper, is fountain-pen-size as shown in the picture, and has a removable cap equipped with a pocket clip. For operation, the chrome stapler head is grasped and squeezed be-

tween thumb and forefinger.

Science News Letter, December 9, 1950

✿ **VENDING MACHINE** for world-wide life insurance for air travelers dispenses an envelope and insurance form when a quarter is deposited in it. When the form is properly filled in it is put into the envelope with the proper amount of money to pay for the insurance desired and returned to the machine.

Science News Letter, December 9, 1950

✿ **SPECTACLE HOLDER**, a flat device which can be tacked or cemented to bathroom, kitchen or bedroom wall, is made of plastic and has two tiny pockets to hold the lenses and a center bridge on which the nose-piece rests. The legs of the eyeglasses stick out for easy grasping.

Science News Letter, December 9, 1950

✿ **DAMPENING BAG** for the laundry will hold clothes sprinkled for ironing in moistened condition for days or until the housewife is ready to iron them. It is made of vinyl film, a plastic that can be welded to make a waterproof bag, and has a draw string enclosure for easy hanging.

Science News Letter, December 9, 1950



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